REMARKS

Claims 1-51 are now pending in the application. Claims 1, 6, 11, 19, 20, 21, 25, 30, 37, 40, 41, 45, 48, 49, and 50 have been amended. No new matter has been added by amendment. Continued examination of the claims as amended is respectfully requested.

CLAIM OBJECTIONS

Examiner objects to claims 1, 6, 21, 25, 37, and 40 for the inclusion of a blank line where the ATCC accession number should be included. Applicant has deposited 2,500 seeds with the ATCC. Claims 1, 6, 21, 25, 37, and 40 have been amended to include the deposit Accession Number "PTA-4263".

REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Examiner rejects claims 19-20 and 48-49 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner states that the recitation of "the single gene conversions of claim 18 [or 47]" is indefinite "since claims 18 and 47 are drawn to maize plants, not single gene conversions." Applicant has amended the claims as suggested by the Examiner thus obviating the rejection.

Examiner objects to claim 50 because of the indefinite recitation of "seed further comprises...male sterility". The Examiner's suggestion of replacing "seed of claim 1 wherein seed" with "plant of claim 3 wherein said plant" has been taken. Claim 50 is now in this form and Applicant thanks the Examiner for his suggestion.

REJECTIONS UNDER 35 U.S.C. §§ 102 and 103

The Examiner rejects claims 14, 17, 33, 36, and 46 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 (a) as obvious over Arthur (U.S. Patent 5,723,739). Applicant again traverses the rejection.

The Applicant has amended claims 41 and 45 by deleting the phrase "said PH48V-derived maize plant expressing a combination of at least two traits which are not significantly different from PH48V when determined at a 5% significance level and when grown in the same environmental conditions, said traits selected from the group

consisting of..." The PH48V-derived plant of claims 41 and 45 are within one cross of PH48V.

Th Applicant respectfully argues that the plants derived from breeding with PH48V are within the scope of the invention. The claims clearly say that crosses are made to inbred maize line PH48V. This means that plants developed utilizing the genetic make-up of PH48V transferred via crosses are within the scope of the invention. Use of the genetics of PH48V, use of the PH48V plant to make crosses, and the ultimate result of a plant with part of the genetics of PH48V is within the scope of the invention. If one does not use PH48V to develop a plant then that plant is not within the scope of the invention because the unique starting material, PH48V, was not used. Each claim clearly states, "A maize plant, or parts thereof, wherein at least one ancestor of said maize plant is the maize plant of claim 2" which is a plant derived from PH48V seed; or "A maize plant, or parts thereof, wherein at least one ancestor of said maize plant is the maize plant of claim 21" which is a PH48V plant identified through its morphology and physiology; or "crossing inbred maize line PH48V". In the MPEP 2116.01 it states, "All limitations of a claim must be considered when weighing the difference between the claimed invention and the prior art when determining the obviousness of a process or method claim." The limitations requiring the use PH48V must be taken into account, and PH48V was not used in the development of LH281. The MPEP 2143.03 also states, "'All words in a claim must be considered in judging the patentability of that claim against the prior art.' *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). 'If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.' *In re Fine*, 837 F2d 1071,5 USPQ2d 1596 (Fed. Cir.1998). "

On page 4 of the office action dated July 5, 2001 the Examiner states, "the mere inclusion of PH48V in the pedigree of the claimed maize plants would not distinguish them from prior art plants, particularly since the number of other parents, crosses or generations is not specified in the claims, wherein increasing the number of each parameter would result in a decrease in PH48V-derived genes. See *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985), which teaches that a product-by-process claim may be properly rejectable over prior art teaching the same product produced by a different process, if the process of making the product fails to distinguish the two products."

The Applicant points out that one of ordinary skill would know if a cross is being made with PH48V which is a limitation in every claim which the Examiner has rejected.

After the action of crossing with PH48V has taken place, the use of PH48V can be determined by breeder books, which ar used to track the pedigree of selected plants and also by molecular marker analysis known to those of ordinary skill in the art. Applicant further points out that less 2% of the coding region of the corn genome is approximately 1,200 genes, based an estimate of 60,000 genes. Further, the coding region is only a tiny percent of the corn genome (about 2%). The remaining non-coding region includes important regulatory elements such as promoters. Thus, the Applicant believes that 1,200 genes and a significant contribution of non-coding DNA are quite significant.

In light of the above, Applicant respectfully requests the Examiner reconsider and withdraw the rejection to claims 14, 17, 33, 36, and 46 under 35 U.S.C. §§ 102(b) and 103(a). Should the Examiner maintain these rejections, Applicant requests that the Examiner specifically state, in accordance with 1.104(d), how PH48V is rendered obvious by LH281.

Applicant has amended claims 11 and 30 to remove the limitation "have been transformed". The removal of the limitation is supported in the specification on page 33, lines 29-32. The specification states, "...a genetic trait which has been engineered into a particular maize line using the foregoing transformation techniques could be moved into another line using traditional backcrossing techniques that are well known in the plant breeding arts." The removal of the limitation clarifies the claim without the introduction of new matter.

CONCLUSION

Attached hereto is a marked-up version of the changes made to the specification and claims by current amendment. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

Applicant submits that in light of the foregoing amendments and the remarks, the claims as amended are in condition for allowance. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

On page 21 of the application, please delete lines 28-32 and insert the following:

The utility of inbred maize line [PH0KT] PH48V also extends to crosses with other species. Commonly, suitable species will be of the family Graminaceae, and especially of the genera *Zea, Tripsacum, Coix, Schlerachne, Polytoca, Chionachne, and Trilobachne,* of the tribe Maydeae. Potentially suitable for crosses with PH48V may be the various varieties of grain sorghum, *Sorghum bicolor* (L.) Moench.

At page 50, lines 2 – 21, following "Deposits", please delete the entire paragraph and insert the clean paragraph.

IN THE CLAIMS

Claims 1, 6, 11, 19, 20, 21, 25, 30, 37, 40, 41, 45, 48, 49, and 50 have been amended.

1. (Amended) Seed of maize inbred line designated PH48V, representative seed of said line having been deposited under ATCC Accession No. [_____] PTA-4263.

6. (Amended) A maize plant regenerated from the tissue culture of claim 4, capable of expressing all the morphological and physiological characteristics of inbred line PH48V, representative seed of which have been deposited under ATCC Accession No. [_____] PTA-4263.

11. (Amended) The maize plant, or parts thereof, of claim 2, wherein the plant or parts thereof [have been transformed so that its genetic material] contain[s] one or more transgenes operably linked to one or more regulatory elements.

19. (Twice Amended) The maize plant[,]or parts [thereof] of claim 18, wherein the one or more single gene conversions [of claim 18] comprise a dominant allele.

20. (Twice Amended) The maize plant[,]or parts [thereof] of claim 18, wherein the one or more single gene conversions [of claim 18] comprise a recessive allele.

21. (Amended) A maize plant, or parts thereof, having all the physiological and morphological characteristics of inbred line PH48V, representative seed of said line having been deposited under ATCC accession No. [_____] PTA-4263.

25. (Amended) A maize plant regenerated from the tissue culture of claim 23, capable of expressing all the morphological and physiological characteristics of inbred line PH48V, representative seed of which have been deposited under ATCC Accession No. [____] PTA-4263.

30. (Amended) The maize plant, or parts thereof, of claim 21, wherein the plant or parts thereof [have been transformed so that its genetic material] contain[s] one or more transgenes operably linked to one or more regulatory elements.

37. (Twice Amended) A process for producing inbred PH48V, representative seed of which have been deposited under ATCC Accession No. [_____] PTA-4263, comprising:

(a) planting a collection of seed comprising seed of a hybrid, one of whose parents is inbred PH48V, said collection also comprising seed of said inbred;
(b) growing plants from said collection of seed;
(c) identifying inbred parent plants;
(f) selecting said inbred parent plant;
(g) controlling pollination through selfing which preserves the homozygosity of said inbred parent plant; and
(f) collecting morphological and/or physiological data so that said inbred parent may be identified as inbred PH48V.

40. (Amended) A method for producing a PH48V-derived maize plant, comprising:

(a) crossing inbred maize line PH48V, representative seed of said line having been deposited under ATCC Accession No. [_____] PTA-4263, with a second maize plant to yield progeny maize seed;
(b) growing said progeny maize seed, under plant growth conditions, to yield said PH48V-derived maize plant.

41. (Twice Amended) A PH48V-derived maize plant, or parts ther of, produced by the m thod of claim 40, [said PH48V-derived maize plant expressing a combination of at least two traits which are not significantly different from PH48V when determined at a 5% significance level and when grown in the same environmental conditions, said traits selected from the group consisting of: a maturity of 121 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, resistance to Southern Leaf Blight, resistance to Northern Leaf Blight, resistance to Gray Leaf Spot, yield, resistance to stalk lodging, resistance to root lodging, staygreen, plant height, ear placement and adaptability to the Southeast region of the United States].

45. (Twice Amended) A PH48V-derived maize plant, or parts thereof, produced by the method of claim 44[, said PH48V-derived maize plant expressing a combination of at least two traits which are not significantly different from PH48V when determined at a 5% significance level and when grown in the same environmental conditions, said traits selected from the group consisting of: a maturity of 121 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, resistance to Southern Leaf Blight, resistance to Northern Leaf Blight, resistance to Gray Leaf Spot, yield, resistance to stalk lodging, resistance to root lodging, staygreen, plant height, ear placement and adaptability to the Southeast region of the United States].

48. (Twice Amended) The maize plant[,] or parts [thereof] <u>of claim 47</u>, wherein the one or more single gene conversions [of claim 47] comprise a dominant allele.

49. (Twice Amended) The maize plant[,] or parts [thereof] <u>of claim 47</u>, wherein the one or more single gene conversions of claim 47 comprise a recessive allele.

50. (Amended) The [seed of claim 1 wherein said seed] <u>plant of claim 3 wherein said plant</u> further comprises genetic or cytoplasmic male sterility.